

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 89-95
NPDES NO. CA0005657

WASTE DISCHARGE REQUIREMENTS FOR:

PACIFIC GAS AND ELECTRIC COMPANY
HUNTERS POINT POWER PLANT
SAN FRANCISCO, SAN FRANCISCO COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter Board) finds that:

General Findings

1. Pacific Gas and Electric Company, Hunters Point Power Plant, (hereinafter discharger) submitted a National Pollutant Discharge Elimination System (NPDES) Permit Application dated April 14, 1988 for reissuance of NPDES Permit No. CA0005649.
2. The discharge of wastewater from this power plant is currently governed by Waste Discharge Requirements, Board Order Nos. 83-43 and 87-101.
3. The discharger produces a total of 396 Megawatt (MW) from three steam-electric generating units and currently discharges once-through cooling water and low volume wastes containing pollutants into Lower San Francisco Bay, a water of the United States.
4. The report of waste discharge describes the existing discharge as follows:

<u>Discharge Outfall</u>	<u>Contributory Waste Stream</u>	<u>Annual Flow Average mgd</u>
001	A. Cooling Water Discharge Canal Units 2 and 3	151
	Sources:	
	Once-through Cooling Unit 2	74.7
	Once-through Cooling Unit 3	74.7

<u>Discharge Outfall</u>	<u>Contributory Waste Stream</u>	<u>Annual Flow Average mgd</u>
001	Auxiliary Water Cooling	1.06
	B.Low Volume Waste	
	Intake Screen Wash- Units 2, 3, and 4	0.232
	Lubricating Water	0.063
002	A.Once-through Cooling Water Discharge- Unit 4	147
	B.Low Volume Waste	
	Lubricating Water	0.0026
003	Storm water runoff	0.0392

5. The discharger withdraws water from the San Francisco Bay from two shoreline surface water intake structures located along the shore of India Basin. Units 2 and 3 share a common intake structure and discharge canal. Unit 4 has its own intake and outfall. Cooling water for the three units drawn from both intakes passes through bar racks and screens. The design approach and through-screen velocities are as follows:

	<u>Intake Serving Units</u>	
<u>Velocities</u>	<u>2&3</u>	<u>4</u>
Approach Screen ft/sec	0.7	0.8
Through Screen ft/sec	1.7	1.6

6. The discharger cools the condenser by pumping water from the intake through the condenser to the point of discharge. The design capacities of the condenser and single speed pump are as follows:

<u>Unit</u>	<u>Design Condenser Temperature Rise</u>	<u>Unit Pump Design Capacity (gpm)</u>
2	21 F	89,000*
3	19 F	89,000*
4	15 F	101,600 (2 pumps)

* two 40,000 gpm main unit and one 9,000 gpm house unit pump

7. EPA and the Board have classified this discharge as a major discharge.
8. Boiler chemical cleaning waste, oily sludge, fireside and waterside washes, regeneration waste, floor drains and contaminated stormwater runoff are discharged to an industrial sump and then to the City of San Francisco or are disposed off-site.
9. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the State Water Resources Control Board (State Board) approved it on May 21, 1987. The provisions of this permit are consistent with the objectives of the Basin Plan.
10. The beneficial uses of the Lower San Francisco Bay and contiguous waters are:
 - a. Water Contact Recreation
 - b. Non-Contact Water Recreation
 - c. Wildlife Habitat
 - d. Preservation of Rare and Endangered Species
 - e. Estuarine Habitat
 - f. Fish Migration
 - g. Industrial Service Supply
 - h. Navigation
 - i. Commercial and Sport Fishing
 - J. Shellfish Harvesting
11. Effluent limitation, and toxic and effluent standards established pursuant to Sections 301, 304, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharge.
12. Effluent limitations guidelines requiring the application of the best practicable control technology currently available (BPT) has been promulgated by the EPA for the Steam Electric Power Generating Point Source Category (40 CFR Part 423.12). Effluent limitations of this Order are based on

these guidelines, the Basin Plan, other State Plans and policies, and best professional judgement. The limitations are considered to be those attainable by BPT, in the judgement of the Board.

13. The Board has made a best professional judgement that BPT is equivalent to best conventional pollutant control technology (BCT) for the regulation of conventional pollutants for this discharger.
14. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21110) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
15. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
16. The Board, in a public hearing, heard and considered all comments pertaining to the discharge permit.

Findings Related to Thermal Effluent Limitations

17. The Clean Water Act (CWA) requires compliance with State water quality standards for the discharge of thermal effluent. The State Board, on September 18, 1975, amended the Water Quality Control Plan for control of Temperature in the Coastal Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). The Thermal Plan requires existing elevated temperature waste discharges to enclosed bays to comply with limitations necessary to assure protection of beneficial uses.
18. The discharger submitted the results of studies on the thermal effects of the elevated temperature discharge on beneficial uses in 1973. These studies included investigations on the fish and other marine biota in the vicinity of the discharge and showed no detrimental effects on the beneficial uses. These studies were supplemented with additional studies on pumped entrainment mortality as part of the Section 316(b) studies described in Finding 22. No additional receiving water studies were required since discharge temperatures were relatively low and the potential impacts on aquatic resources were minimal.
19. The Board, in 1983, found that the present thermal discharge limitation is sufficient to assure protection of beneficial

uses.

20. Although the discharger hasn't made any physical or operational changes to the plant since 1983 (which would increase thermal loading), the Board and the Department of Fish and Game (DF&G) need to be assured that the existing thermal limitation is sufficient to assure protection of beneficial uses because 1) the original studies were conducted in 1973 and 2) the hydrodynamics of the Lower San Francisco Bay may have changed since then.
21. The Board and DF&G deem necessary that the discharger performs a fishery survey in the discharge area to determine the aquatic abundance in the area and any adverse impact to the aquatic habitat.

Findings Related to Best Technology Available (BTA) for Intake Systems

22. Section 316(b) of the CWA requires that the location, design, construction, and capacity of cooling water intake structures reflect the BTA for minimizing adverse environmental impact. The discharger submitted a 316(b) study report in 1982 in order to comply with the CWA.
23. The impact of the discharger's intake cooling water system is a function of the number of organisms entrained (drawn into the cooling water system) and impinged (drawn into the intake screens).
24. The 316(b) study showed that impingement losses of fish were low, primarily Northern Anchovy and Pacific Herring; both exhibiting large and highly productive populations in the Bay system. Entrainment losses were also low; primarily larvae and juveniles of Gobies and Pacific Herring.
25. Entrainment survival is influenced by physical, thermal, and chemical stresses. Over 98 percent of the discharge temperatures recorded during the study period were lower than the lethal thermal of 30 C. Chlorination did not appear to contribute substantially to entrainment mortality, because of low chlorine residuals, short exposure times, and the infrequency of chlorination (2 percent of the operating time).
26. The study indicated that most of the entrainment losses were due to predation by biofouling organisms lining the intake tunnels.
27. In 1983 the Board found that the existing cooling water intake systems for Units 2, 3 and 4 and the continued use of thermal demusselling treatment to control biofouling organisms are the best intake technology available for

IT IS HEREBY ORDERED that the discharger in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

1. The discharge of polychlorinated biphenyl compounds is prohibited.

1. Discharge 001 and 002 shall not contain constituents in excess of the following limits:

- c. The discharge shall meet the following limits of toxicity:

d. The temperature of the discharge shall not exceed a daily average of 86 F except on days when thermal demusselling treatment occurs. During thermal demusselling, the discharge temperature shall not exceed 100 F for more than four hours or a maximum of 110 F. Thermal demusseling shall not occur more than twice per month for each half condenser (there are two half condensers per unit) at Unit 4 and once per month at Units 2 and 3.

<u>Constituent</u>	<u>Units</u>	<u>30-Day Average</u>	<u>Maximum Daily</u>
Total Suspended Solids	mg/l	30	100
Oil and Grease	mg/l	10	20

3. The quantity of pollutants discharged from low volume wastes shall not exceed the quantity calculated from the flow of the waste sources times the concentration in mg/l in B.2.

C. Receiving Water Limitations

1. The discharge shall not cause the following conditions to exist in waters of the State at any place:
 - a. Floating, suspended or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growths;
 - c. Alteration of turbidity or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended or deposited oil or other products of petroleum origin, and
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl or render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge shall not cause the following limits to be exceeded in water of the State at any place within one foot of the water surface:
 - a. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
 - b. Dissolved sulfide: 0.1 mg/l maximum
 - c. pH The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.

d. Un-ionized	0.025 mg/l Annual Median
Ammonia (as N)	0.16 mg/l Maximum at any time.

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such standards.

D. Provisions

1. The discharger shall comply with the attached Self-Monitoring Program as adopted by the Board and as may be amended by the Board pursuant to EPA regulations 40 CFR 122.62, 122.63, and 124.5.
2. The discharger shall comply with the limitations, prohibitions, and other provisions of this order immediately upon its adoption by the Board except as noted below.
3. The discharger shall perform a thermal effects study to determine the adverse impacts, if any, on the fish and shellfish in the discharge area. The study shall focus on possible thermal effects on the local Pacific herring population. The study shall be twelve months in duration to account for seasonal aspects. The discharger shall submit a study plan acceptable to the Executive Officer by August 15, 1989. The discharger shall submit a final report to the Executive Officer by February 28, 1991. If the study results show that the discharge does not protect beneficial uses as required by Objective 4.A.1. of the California Thermal Plan, then the Board may review and modify temperature limitations in Effluent Limitation B.1.d. prior to the permit expiration date.
4. The discharger shall develop and submit a Best Management Practices (BMP) program to the Executive Officer by December 21, 1989. The BMP program shall be consistent with the EPA regulations 40 CFR 125, Subpart K and the general guidance contained in the "NPDES Best Management Guidance Document", EPA Report No. 600/9-79-045, December 1979 (revised June 1981). A BMP program acceptable to the Executive Officer shall be implemented by April 1990.
5. The discharger shall comply with all items of the attached "Standard Provisions and Reporting Requirements" dated

December 1986.

6. The discharger shall review and update by November 1 each year its contingency plan as required by Board Resolution No. 74-10. The discharge of pollutants in violation of this Order where the discharger has failed to develop and/or implement a contingency plan will be basis for considering such discharge a willful and negligent violation of this Order pursuant to section 13387 of the California Water Code.
7. This permit shall be modified or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301 (b)(2)(c), and (d), 303, 304(b) (2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (b) Controls any pollutant not limited in the permit.


The permit as modified or reissued under this paragraph shall also contain any other requirement of the Act then applicable.

8. All applications, reports, or information submitted to the Board shall be signed and certified pursuant to EPA regulations (40 CFR 122.41K).
9. Pursuant to EPA regulations [40CFR 122.42(a)], the discharger must notify the Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture of a pollutant not reported in the permit application, or (2) a discharge of toxic pollutants not limited by this permit has occurred, or will occur, in concentrations that exceed the specified limits included in 40 CFR 122.42 (a).
10. This Order expires on June 21, 1994 and the discharger must file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.
11. Pursuant to EPA regulations 40 CFR 122.4, 122.62, and 124.5, this permit may be modified prior to the expiration date to include effluent limitations for toxics constituents determined to be present in

significant amounts in the discharge through a more comprehensive monitoring program included as part of this Order.

12. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act or amendments thereto, and shall take effect at the end of 10 days from date of adoption provided the Regional Administrator, Environmental Protection Agency, has no objections.

I, Steven R Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 21, 1989.



Steven R. Ritchie
Executive Officer

Attachments:

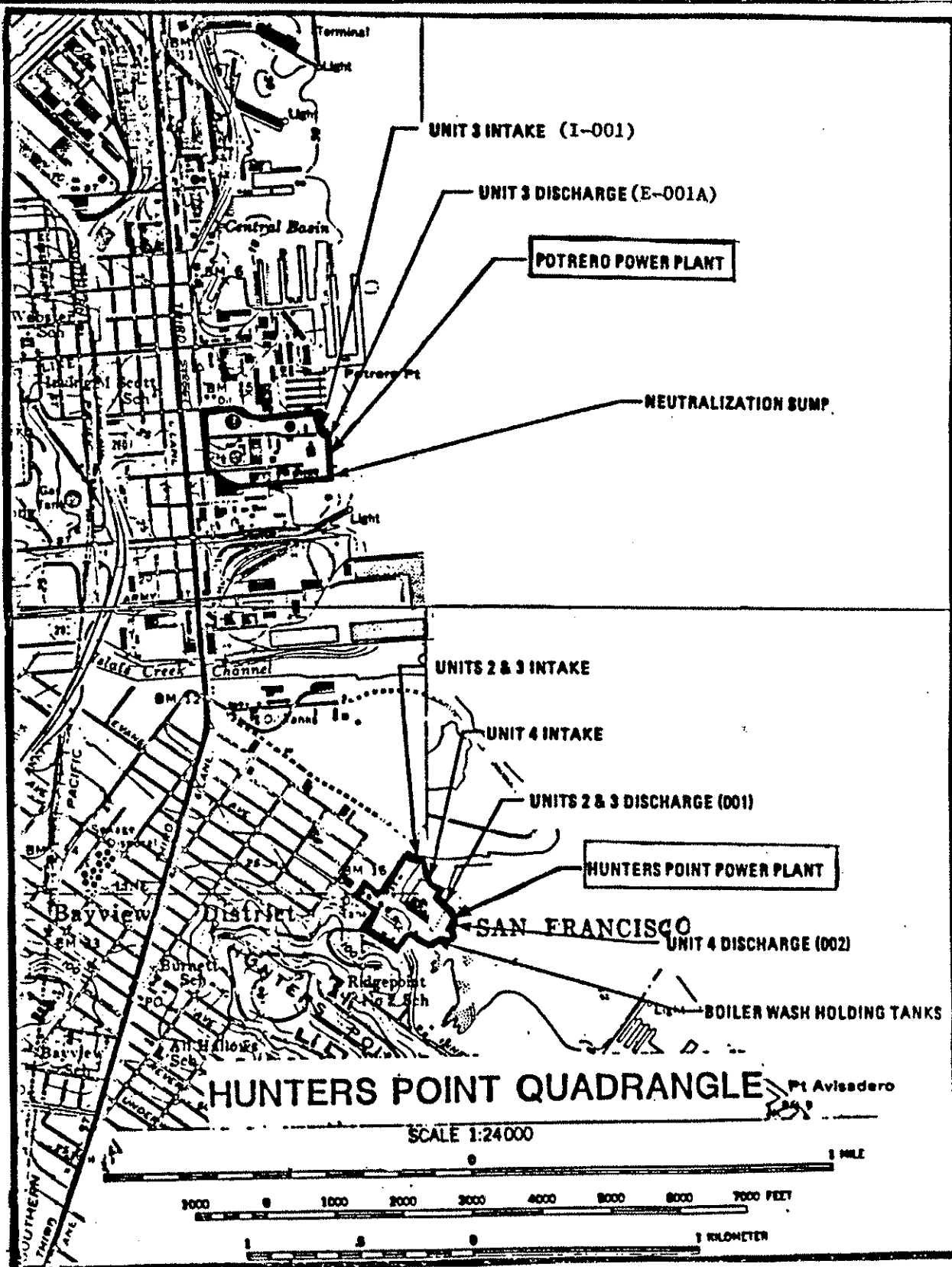
Location Map

Flow Schematic

Standard Provisions and Reporting Requirements dated December 1986

Resolution No. 74-10

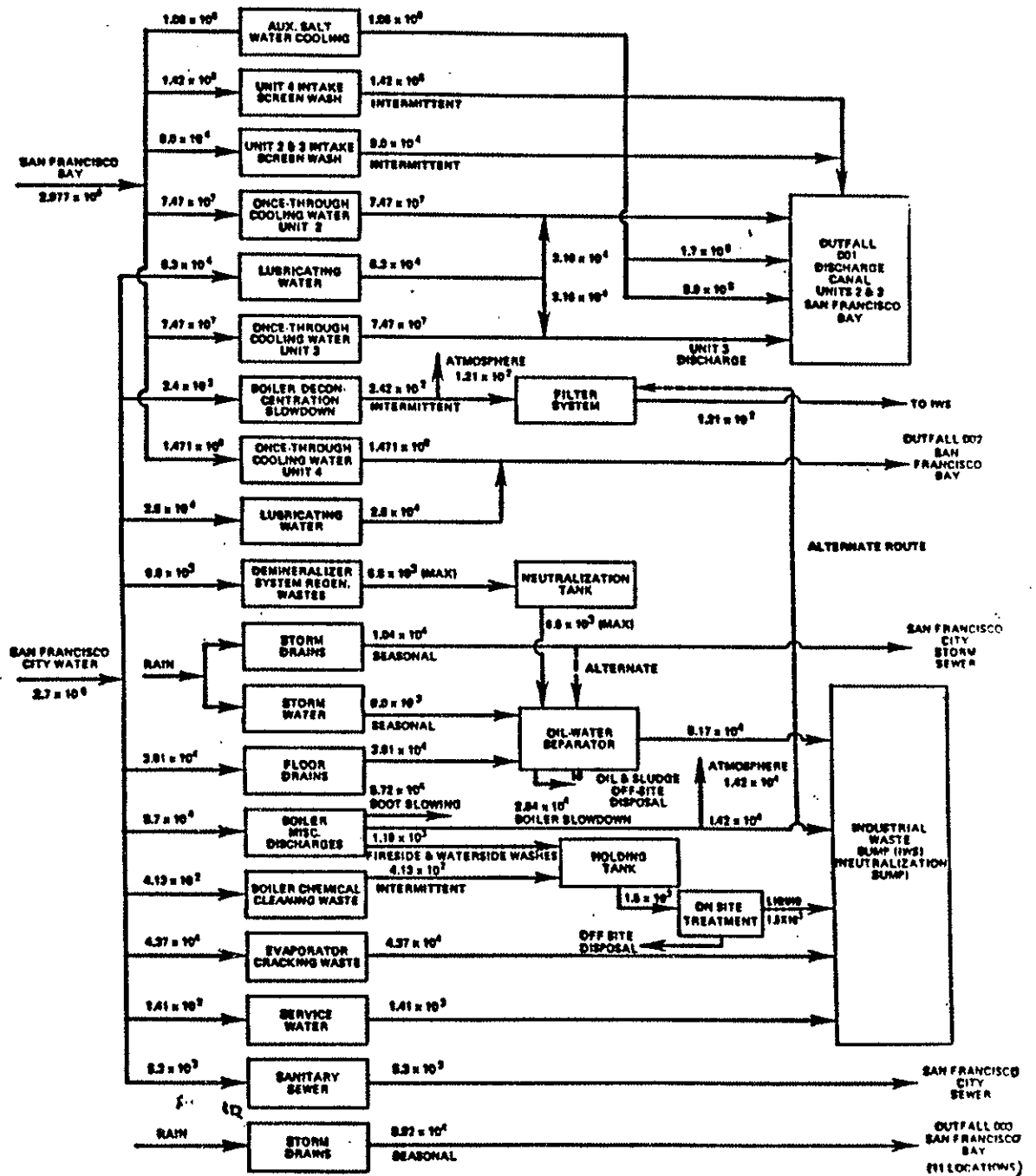
Self-Monitoring Program



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

LOCATION MAP
OF
HUNTERS POINT AND POTRERO
POWER PLANTS

DRAWN BY: PG4E DATE: 1988 DRWG. NO.



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

HUNTERS POINT POWER PLANT
WATER FLOW SCHEMATIC

DRAWN BY: PGE DATE: 1988 DRWG. NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR

PACIFIC GAS AND ELECTRIC COMPANY
HUNTERS POINT POWER PLANT, SAN FRANCISCO
CITY AND COUNTY OF SAN FRANCISCO

NPDES NO. CA0005649

ORDER No. 89-95

CONSISTS OF

PART A (dated December 1986)

AND

PART B

SELF-MONITORING PROGRAM

PART B

DESCRIPTION OF SAMPLING STATIONS
AND
SCHEDULE OF SAMPLING, ANALYSIS & OBSERVATIONS

I. Sampling Station Location/Description

A. Influent

<u>Station</u>	<u>Description</u>
I-001	At any point in the influent stream and upstream of any treatment where representative samples of the influent can be obtained.

B. Effluent

<u>Station</u>	<u>Description</u>
E-001A	At any point in the outfall for Units 2 and 3 from which once-through cooling and low volume wastes are discharged, between the point of discharge to San Francisco Bay and the point at which all pollutants tributary to that outfall are present.
E-001B	At any point in the low volume waste stream prior to mixing with once-through cooling water from Units 2 and 3.
E-002A	At any point in the outfall for Unit 4 from which once-through cooling water is discharged to San Francisco Bay and the point at which all pollutants tributary to that outfall are present.
E-002B	At any point in the low volume waste stream prior to mixing with once-through cooling water from Unit 4.

Station

Description

E-003 At any point in the outfall from each of the 11 storm drains from which stormwater runoff is discharged to San Francisco Bay.

II. Schedule of Sampling, Analysis & Observations

- A. The schedule of sampling and analysis shall be that given in Table 1 (attached).
- B. Sample collection, storage, and analysis shall be performed according to the latest 40 CFR Part 136 or other methods approved and specified by the Board.

III. Miscellaneous Reporting


The discharger shall retain and submit (when required) the following information concerning the monitoring program for metallic pollutants.

- a. Description of sample stations, times and procedures.
- b. Description of sample containers, storage, and holding time prior to analysis.
- c. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal and surrogate standards.

I, Steve R. Ritchie, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

- 1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established by this Board.
- 2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions may be ordered by the Executive Officer or Regional Board.


STEVEN R. RITCHIE
Executive Officer

EFFECTIVE DATE 6/21/09

Attachments:
Table 1

TABLE I

SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

<u>Station</u>	<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency of Analysis</u>
I-001	Temperature	F	-	continuous
	Total Suspended Solids	mg/l lbs/day	24-hour-composite	monthly
	pH	pH units	grab	weekly
	Turbidity	Jackson Turbidity Units	grab	monthly
	Dissolved Oxygen	mg/l & % Saturation	grab	monthly
	Arsenic	ug/l lbs/day	24-hour composite	monthly
	Cadmium	ug/l lbs/day	24-hour composite	monthly
	Chromium	ug/l lbs/day	24-hour composite	monthly
	Copper	ug/l lbs/day	24-hour composite	monthly
	Silver	ug/l lbs/day	24-hour composite	monthly
	Lead	ug/l lbs/day	24-hour composite	monthly
	Mercury	ug/l lbs/day	24-hour composite	monthly
	Nickel	ug/l lbs/day	24-hour composite	monthly
	Zinc	ug/l lbs/day	24-hour composite	monthly
	Thallium	ug/l lbs/day	24-hour composite	monthly

<u>Station</u>	<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency of Analysis</u>
E-001A	Temperature	F	-	continuous
	Flow	MGD	from pump operating data	daily
	pH	pH units	Grab	weekly
	Chlorine Residual	mg/l	Grab	daily, when treating
	96-hour fish bioassay	% survival	(1)	monthly
	Arsenic	ug/l lbs/day	24-hour composite	monthly
	Cadmium	ug/l lbs/day	24-hour composite	monthly
	Chromium	ug/l lbs/day	24-hour composite	monthly
	Copper	ug/l lbs/day	24-hour composite	monthly
	Lead	ug/l lbs/day	24-hour composite	monthly
	Mercury	ug/l lbs/day	24-hour composite	monthly
	Nickel	ug/l lbs/day	24-hour composite	monthly
	Zinc	ug/l lbs/day	24-hour composite	monthly
	All Applicable Standard Observations			monthly

<u>Station</u>	<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency of Analysis</u>
E-002A	Temperature	F	-	continuous
	Flow	MGD	from pump operating data	daily
	pH	pH units	Grab	weekly
	Chlorine Residual	mg/l	Grab	daily, when treating
	96-hour fish bioassay	% survival	(1)	monthly
	Arsenic	ug/l lbs/day	24-hour composite	monthly
	Cadmium	ug/l lbs/day	24-hour composite	monthly
	Chromium	ug/l lbs/day	24-hour composite	monthly
	Copper	ug/l lbs/day	24-hour composite	monthly
	Lead	ug/l lbs/day	24-hour composite	monthly
	Mercury	ug/l lbs/day	24-hour composite	monthly
	Nickel	ug/l lbs/day	24-hour composite	monthly
	Zinc	ug/l lbs/day	24-hour composite	monthly
	Thallium	ug/l lbs/day	24-hour composite	monthly
	All Applicable Standard Observations			monthly

<u>Station</u>	<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency of Analysis</u>
E-001B and E-002B	Total Suspended Solids	mg/l	grab	monthly
	Oil & Grease	mg/l	grab	monthly
	Flow	mgd	-	monthly
E-003	Oil and Grease	mg/l	grab	monthly
	TOC	mg/l	grab	monthly

LEGEND

FREQUENCY OF ANALYSIS

Monthly= once each month

Daily= once each day

Continuos= average of at least eight measurements per day
collected at three hour intervals

FOOTNOTE

- 1) The bioassay test shall be a static-renewal test using two test fish species (stickleback and sandabs).
- 2) Stormwater discharges shall be sampled once each month at each discharge location only if a discharge occurs.